FOR POINTS OF SALE: MATCH-CODE-RESPONSIVE, SELECTIVE, WHOLE-TRANSACTIONS-DATA CAPTURE METHOD, SYSTEMS AND APPARATUS

BACKGROUND

In transactions occurring at points of contact with customers, for example such as in mass retailing and banking, the practice for many years was to handle customers' purchase transactions by involvement of servicing personnel in almost all aspects of such transactions occurring at points of check-out contact with customers. Such points of contact with customers wherein tender is exchanged for desired goods or services herein are called points-of-sale (POS).

As demand growth plateaued and as competition intensified, retaining market leadership necessitated servicing more transactions, cutting costs, improving service and efficiency and speeding up transactions occurring at each POS to lower market pricing while increasing profit margins. To accomplish these objectives, most of each transaction now is handled by computerized processing. Since today's large retail chains face a high threshold of costs to be overcome each business day, with overall consumer purchases ("consumption") now tending to be "flat" and competitively volatile, there is

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great urgency in transmitting and aggregating all data regarding sales transactions occurring at each POS as fast and accurately as possible to a central ("host") computer facility for data storage and for processing into decision-making information. In summary, there is an urgent, competitive-pressure need to know up-to-the-minute profit data. This need to know current profit facts puts pressure on managers of retail firms (particularly chains) to allow nothing to interfere with nor interrupt quick and accurate real-time transmission to their "host" computer facility of all sales data. By way of example, it is my understanding that Walmart's Bentonville, Arkansas, headquarters knows the daily total of all sales for all 2,000 stores in their chain by 7:00 A.M. the next morning.

Sales transactions data are fed into a retailer's POS computerized processing system at each check-out terminal station as cashiers scan-in (machine-read-in) and/or key-in all data regarding transactions as they are occurring, including Product Codes for items being sold. Thus, all transaction data immediately are sent to and are collected temporarily in the retailer's nearby "in-store processor" or "controller", herein called a data storage computer facility, thereby becoming an aggregation of all data regarding incoming revenue and total costs of all items sold. From Product Codes data, the data storage computer facility determines identifies of sold items,

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their current sales prices and their costs. Thereby, such an in-store data storage computer facility is enabled to provide a total of revenue from sales and to provide a total of costs of items sold. This in-store data storage computer facility is regularly and consistently polled by the centralized host computer, thereby becoming an aggregation of all sales receipts of all items sold at all stores in the chain and an aggregation of all costs of items sold.

An objective is for management of a retail establishment on a hour-by-hour basis to be able to determine if and when today's aggregation of sales data indicates that sufficient profits have accrued to exceed today's threshold of costs. This need to determine if and when aggregate sales profits are exceeding a current threshold of costs has become increasingly critical in view of a long-term trend (since 1960's) in retailing towards multi-store chains of larger and larger stores, i.e., with more and more square feet and sales volume per store. As America's and Europe's socioeconomic environments have matured, price elasticity in retailing has waned, and competition has intensified.

The retailing industry has consolidated for greater market share and operating efficiencies. Individually-owned establishments have been bought out or displaced by larger

stores which are associated with or included in chains. In
America, the Walmart chain has grown to about 2,000 units with
annual current aggregate sales of about $104 Billion.

For retail establishments which are parts of a retail
chain, as soon as possible after close of their day's business,
each individual store's sales transactions data, which have been
collected in the retailer's data storage computer facility, are
transmitted to the retailer's host computer facility located at
company headquarters or at a dedicated site. In that host
computer facility, the individual store's sales transactions
data transmitted from each particular retail establishment in
the chain are aggregated with sales data transmitted from all
other stores in the chain. Thus, soon after close of each
business day, corporate management of the chain can determine
their total sales volume, identities of all items sold and
profit or loss resulting from these sales transactions which
have occurred at all of the retail outlets in the chain. But
there is no readily available, customer-specific, sales
transactions information nor customer-specific purchasing-
patterns information collected in the host computer.

While it is possible to utilize data in the host
computer to analyze transactions to determine which are the most
profitable, such information is academic without an ability to

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predictably and accurately replicate or enhance subsequent most profitable purchases and purchasing-patterns by having the most vital information, namely: WHO ARE THE RETAILER'S MOST PROFITABLE SHOPPERS AND WHERE ARE THEY LOCATED?

Relatively recently, managements involved in transaction-based industries, particularly those managing large mass-marketing chains of outlets, have begun to recognize that various outlets located in various geographic areas: rural, suburban, urban, coastal, inland, farming, manufacturing, etc. are serving groups of customers who are not alike in the types of and prices of their purchases and whether or not their purchases at particular outlets involve a multi-year-usage item, such as a refrigerator, stove, lawn mower, clothes dryer and the like. Transaction volume levels for the nation's dominant mass retailers are enormously high. All transactions regardless of profitability are aggregated into a central host computer. Therefore, this enormous bank of data aggregated into a central host computer essentially is unavailable and useless for analytical purposes.

In an attempt to mine or extract some further benefits from the aggregated bank of data stored in their host computers and in seeking to reap such benefits on an "actionable time frame basis", two of the nation's largest mass-marketing

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retailers have invested hundreds of millions of dollars (perhaps more than a billion dollars sum total by them both) in purchasing some of the world's fastest, most powerful and most expensive computers. Even using these fastest, most powerful computers, these two huge retailers do not find out information about their sales patterns which I believe to be among the most important factors for guiding an efficient, profitable retail sales operation so as to optimize transactions occurring at each individual outlet in the chain and to enhance customer loyalty and to encourage consistent patronage by those specifically-identified customers whose patterns of transactions are more profitable than typical or average patterns of transactions.

SUMMARY OF THE DISCLOSURE

Among advantages provided by a method, systems and apparatus embodying the present invention are those resulting from the fact that they enable a real-time, selective, on-line capture of valuable data about characteristics and nature of selected individual transactions and provide the identities of specific, most profitable customers or households. They provide a far more time and cost efficient ability to extract and yield information including identification of the specific customers or households which are the retailer's most profitable shoppers, and including determinations of their usual or average

purchasing patterns as shown by their particular transactions.
They enable selective capture of valuable information about
specific customer's frequencies of coming to a particular retail
establishment and each customer's typical or average dollar
volumes of purchases occurring during each of their POS
transactions and the typical cost/quality of products involved
in their individual transactions. From this captured
information, a retail organization is enabled to efficiently and
effectively leverage their sales data. The organization is
enabled to isolate and to motivate by special treatment their
most profitable core of customers. A method, systems and
apparatus embodying the invention provide for determining
product assortment and inventory levels required to meet and to
please (or to satisfy) the sales wishes and desires of those
particular customers who account for about 75% to 80% of all
purchases occurring at a specific retail outlet in a chain and
who account for about 75% to 80% of all purchases occurring at
various respective individual retail outlets in the chain. The
illustrative embodiments of the invention as described enable
various aspects of each selected sales transaction to be
analyzed in various ways as may be deemed most useful and
helpful for each specific retail outlet and as may be deemed
most useful and helpful for an overall chain operation, wherein
there are local managements of numerous retail outlets scattered
throughout large and diverse geographic regions.

For example, this invention enables the sorting and analysis of 100% of transactions by automated presorting for capturing a selection of whole transactions in relation to actual customers or customer households via the use of a household-specific or customer-specific MATCH Code to track and enable automated presorting simultaneously with the ongoing current purchases by each successive customer coming to each check-out terminal station.

As a valuable result of this presorting, a retail operation is enabled to select those 20% to 30% of customers whose patterns of purchases are most profitable and whose patronage and loyalty are most needed to be encouraged and rewarded; so that each retail outlet will be operating at and will continue operations at an optimum profitability, and so that a chain of outlets as a whole will be operating at and will remain at optimum profitability, thereby to keep a whole retail chain operation successful and growing in the face of ever-increasing competition.

In accord with the invention, a method is provided for use in retail establishments involving points-of-sale (POS) transactions wherein customers in their respective transactions present selected products at check-out terminal stations and wherein such products have Product Codes for enabling a data

storage computer facility to determine identities, current prices and costs of products being sold and wherein all data regarding transactions currently occurring at the check-out terminal stations including Product Codes are input into the data storage computer facility. This method enables operating such POS transactions to develop sales information so that managements of such retail establishments can carry out focused or selective marketing activities and/or enhanced sales procedures for increasing profitability.

This method comprises the steps of:

providing to selected prospect customers, identified as Primary Prospect Households (PPHs), respective Reward Offers each having an associated MATCH Code identifying the specific Household and/or to its address to which the Reward Offer was provided, said Reward Offer presenting at least one offer for sale of a product identified in the Reward Offer with a special incentive for its purchase;

fashioning each Reward Offer for a prospect customer to submit the Reward Offer with its MATCH Code at a check-out terminal station during a retail transaction;

inputting the MATCH Code at the check-out terminal station developing a corresponding code signal as an input signal for a data storage computer facility;

monitoring signals input to the data storage computer facility relating to purchasing activities occurring at the check-out terminal station for detecting any code signal corresponding to a MATCH Code;

identifying, in response to detection of a code signal corresponding to a MATCH Code, a group of signals representing all data relating to each completed transaction at the check-out terminal station wherein a code signal was developed corresponding to a MATCH Code; and

storing data relating to each such group of signals in an accessible manner.

Also, in one aspect, the method involves analyzing the stored data relating to each such group of signals to determine information relevant for marketing and sales procedures to be carried out subsequently.

The invention provides a method, systems and/or apparatus for use in retail establishments involving points-of-sale (POS) transactions wherein customers in their respective transactions present selected products at check-out terminal stations and wherein such products have Product Codes for enabling a data storage computer facility to determine identities, current prices and costs of products being sold and wherein all data regarding transactions currently occurring at

the check-out terminal stations including Product Codes are input into the data storage computer facility. The method, systems and/or apparatus enable operating such POS transactions in relation to submissions of Reward Offers having MATCH Codes to develop sales information so that managements of such retail establishments can carry out focused or selective marketing activities and/or enhanced sales procedures for increasing profitability.

Apparatus as shown monitors and captures customer-specific sales information regarding Primary Prospect Households (PPHs) during transmissions to a data storage computer facility of all data signals relating to transactions occurring at a check-out terminal station involving submissions of Reward Offers having MATCH Codes for enabling managements of such retail establishments to carry out focused or selective marketing activities and/or enhanced, sales procedures for increasing profitability.

The customer-specific data-capturing apparatus comprises:

a Reward Offer adapted to be provided to a specific prospect customer address and having a MATCH Code associated therewith;

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said MATCH Code including data identifying the specific prospect customer address to which the Reward Offer is provided;

said Reward Offer presenting at least one offer for sale of a product identified in the Reward Offer with a special incentive for its purchase;

said MATCH Code being machine-sensible;

a computer facility for use in a retail establishment for monitoring all data signals arising from transactions occurring at a check-out terminal station;

said data signals being adapted for input to a data storage facility;

said computer facility being responsive to any signal corresponding to a MATCH Code for identifying a group of data signals representing the total of all transaction data relating to a completed transaction involving submission at a check-out station of a Reward Offer having an associated MATCH Code;

said computer facility selecting from said monitored data signals each group of data signals representing the total of all transaction data relating to a completed transaction involving the submission of a Reward Offer having an associated MATCH Code; and

said computer selectively accessibly storing each such group of data signals in a form suitable for analyzing the group to determine relevant information to enable improved selective marketing activities and/or enhanced sales procedures regarding specific prospect customers.

In accord with an embodiment of the invention for use in reference to sales transactions involving multitudes of customers per day coming to at least one Point of Sale (POS) wherein each customer is involved in a purchasing transaction and during each respective purchasing transaction each respective customer purchases varying amounts of various items, wherein items usually are identified by individual Product Codes, wherein each respective customer's overall transaction is completed by creating a total charged amount equal to the total charges for all items purchased in the respective transaction minus any discounts and/or premium credits applicable to items purchased during the respective overall transaction and/or applicable to the respective overall transaction, wherein a stream of electronic and/or optical data is developed at the POS resulting from said transactions and said stream of data is transmitted to a predetermined data storage computer facility located at a distance from each POS, said data corresponding to Product Codes and quantities of items purchased at the POS, discounts and/or premium credits applicable to purchased items and/or applicable to each respective transaction, and said data storage computer facility transmits back to each POS current price data and other suitable data for enabling to be developed at the POS a total charged amount for the respective completed transaction, there is provided a method comprising the steps of: providing Reward Offers to preselected specific customers, each

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Reward Offer having an associated MATCH Code identifying a specific customer and each Reward Offer including an offer for sale of at least one product identified in the Reward Offer with an inducement for purchase of said product; sensing said stream of data; temporarily storing successive portions of said stream of data in accessible temporary storage; said temporary storage having suitable data storage capacity for temporarily storing more data than all of the data developed in a longest predetermined transaction; sensing each occurrence of a signal corresponding to a MATCH Code; removing from said accessible temporary storage all data relating to each completed transaction wherein there is no occurrence of a signal corresponding to a MATCH Code; selecting from said accessible temporary storage each group of data relating to each completed transaction wherein there is an occurrence of data corresponding to a MATCH Code; and analyzing each such group of selected data for determining predetermined aspects regarding the data in each such group, said predetermined aspects comprising:

(a) for each respective group of selected data determining the identity of each customer to whom a Reward Offer was provided from data corresponding to a respective MATCH Code;

(b) for each respective group of selected data determining the charged amount; and

(c) for each respective group of selected data determining identities of items purchased by said specific customer from data corresponding to Product Codes.

In accord with further aspects of this method, predetermined analytical steps include:

(d)   for each respective group of selected data identifying a charged amount occurring at completion of a transaction which exceeds a predetermined dollar amount;

(e)   for each respective group of selected data identifying each item whose sale provides a profit exceeding a predetermined amount of money;

(f)   for each respective group of selected data identifying each item whose sale provides a profit exceeding a predetermined percentage.

As used herein the term "machine-sensible" as applied to MATCH Codes is intended to include machine-readable codes, optically-readable codes, magnetically-readable codes, electrostatically-readable codes, electronically-readable codes and/or codes which are scannable by electromagnetic mechanisms and/or by mechanical mechanisms and/or by electrical mechanisms and/or by electronic mechanisms, and/or by optical mechanisms and the like.

At current technology levels, machine-sensible MATCH Codes associated with Reward Offers are preferably provided in the form of strips of optically-readable bar code. However, it

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is to be understood that future technology may provide other media and/or other mechanisms for providing machine-sensible MATCH Codes in other forms and/or other configurations.

As used herein the term "MATCH Code" means a machine-sensible code incorporating data comprising:

M - Marking data for identifying the Primary Prospect Household to whom the Reward Offer was provided and for Marking a transaction involving that Primary Prospect Household (PPH).

A - Auditing data for auditing a reward reimbursement trail for financial control and for fraud control.

T - Tracking data for enabling Tracking of actual purchase behavior of a PPH.

C - Cueing data for compiling purchasing loyalty rewards for respective PPHs.

H - Household data for confirming and identifying respective PPHs.

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BRIEF DESCRIPTION OF THE DRAWINGS

The invention, together with further objects, features, advantages and aspects thereof, will be more clearly understood from the following detailed description considered in conjunction with the accompanying drawings which are arranged with emphasis being placed upon clearly illustrating the principles of the invention. Like reference numerals indicate like elements, like components or similar functions throughout the different views.

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate presently preferred methods, systems and apparatus embodying the invention and, together with the general description set forth above and the detailed description of the preferred embodiments set forth below, serve to illustrate and explain principles of the invention. In these drawings:

FIG. 1 is a functional block diagram illustrating embodiments of the invention.

FIG. 2 is a functional block diagram illustrating other embodiments of the invention.

FIG. 3 is a functional block diagram illustrating functions involved in monitoring all data occurring and/or developed in POS transactions and in selectively capturing and analyzing selected groups of data relating to completed transactions each of which involved a MATCH Code.

Detailed Description of Preferred Embodiments

Inviting attention to FIG. 1, there is shown a method, systems and apparatus generally indicated at 10 embodying the present invention and being operated in a retail establishment 12, for example such as a supermarket, department store, and the like. Such a retail establishment 12 usually has a plurality of check-out terminal stations, as is well known in the art of operating retail establishments. Two of these plural check-out terminal stations are shown at 20. These stations 20 are connected by a data communication pathway 30 with a data storage computer processing facility 40. It is noted that this data communication pathway 30 may include electronic and/or optical mechanisms and/or signal processors and/or other suitable communications handling equipment in addition to electrical and/or optical and/or microwave communication connections and/or other suitable communications transmission equipment.

The data storage computer facility 40 is located and arranged to be conveniently accessible to management of the

retail establishment 12. For example this facility 40 may be in an adjacent office or in a second floor office of the retail establishment 12.

As is shown by a functional explanation 50 and by an arrow 52 showing input of data signals, the communication pathway 30 inputs data signals from the check-out terminal stations 20 into the data storage computer facility 40. It is noted that this data storage computer facility includes suitable processing capability for practical uses in a retail establishment 12. The data signals 52 relate to all check-out transactions 60 and 70 occurring at the check-out terminal stations 20.

It is to be understood that some or all of the other check-out terminal stations in the retail establishment 12 also may be connected through this communications pathway 30 to the data storage computer facility 40.

The check-out transactions include those shown at 70 embodying aspects of the present invention, wherein each transaction involves a presentation of a Reward Offer having an associated MATCH Code, and these check-out transactions also include other check-out transactions 60 as known in the art being carried out without involving MATCH Codes.

The other transactions 60 typically include purchases of various products, tenders of cash, or of credit or debit cards, credit adjustments, e.g. for coupons, bottle deposits, rainchecks, and the like. Also, these other transactions 60 include sensing at the check-out terminal station 20 of Product Codes associated with various items being purchased. This sensing of Product Codes produces data signals corresponding specifically to identifies of Products being purchased. These product identity data signals are input along the data communication pathway 30 along with other input data relating to the transactions 60 as shown by arrow 52, thereby being input into the data storage computer facility 40. In order to determine current prices (including any current sales discounts) applicable to respective products whose Product Codes produced the product identity data signals input into the data storage computer facility 40, this facility is arranged, e.g. programmed, to "look up", i.e., to locate in a data bank and to provide data signals representing prices applicable to current respective identified products. This computer facility 40 transmits data signals 54 along the data communication pathway 30 to the check-out station 20. These data signals 54 are suitable for enabling all debit items to be subtotalled and for credit adjustments for coupons, bottle deposit returns, rainchecks, etc. then to be subtracted from a subtotal such that customers' bills can be calculated and totalled. Each

transaction is "completed" when data is entered relating to
tender of payment for the totalled bill.

In the introduction above, it was explained that Reward
Offers are provided to selected prospect customers, identified
as Primary Prospect Households (PPHs). Each Reward Offer has an
associated MATCH Code identifying the specific Household and/or
its address to which the Reward Offer was provided. The Reward
Offer presents to the PPH at least one offer (and preferably
presents a plurality of such offers) for sale of a product (or
for sale of a plurality of products) identified in the Reward
Offer. This (these) offer(s) for sale of identified product(s)
include(s) special incentive(s) for its (their) purchase.
Consequently, the PPH becomes motivated to bring its Reward
Offer to the retail establishment which provided the Reward
Offer and to present the Reward Offer to a check-out station 20
at that establishment during a check-out transaction 70.

The Reward Offer has an associated machine-sensible
MATCH Code. Thus, when a PPH submits its Reward Offer at a
check-out terminal station 20 during its check-out transaction
70, this MATCH Code is sensed by an appropriate sensor at the
check-out terminal station 20, thereby producing a code signal
corresponding specifically to this MATCH Code. This code signal
is input into the data storage computer facility 40 along with

all other data signals 52 relating to this currently on-going check-out transaction 70.

Except for aspects embodying the present invention involving presentation of a Reward Offer having an associated MATCH Code, and except for any incentive and/or rewards and/or extra discounts and/or premiums and/or benefits arising in a transaction 70 which involves such MATCH Code, a transaction 70 otherwise is similar to a transaction 60, which was described above.

A computer facility 80 embodies aspects of the present invention and is shown monitoring via communication pathway 90 the input data signals 52 coming from the check-out terminal stations and the return data signals 54 coming from the data storage computer facility 40. This monitoring of data signals 52 and 54 is shown by arrows 52' and 54' aimed along the communication pathway 90 toward the computer facility 80. It is noted that this monitoring communication pathway 90 may include electronic and/or optical mechanisms and/or signal processors and/or other suitable communication handling equipment in addition to electrical and/or optical and/or microwave communication connections and/or other suitable communication transmission equipment. Also, it is to be understood that this monitoring communication pathway 90 and the computer facility 80

do not block ongoing transmissions of data signals 52 and 54

along the communication pathway 30.

The computer facility 80 as shown has suitable

temporary data storage capacity for temporarily storing and

thereafter erasing all data relating to all completed

transactions occurring at all check-out terminal stations 20 and

20' wherein code signals corresponding to MATCH Codes are not

monitored during each such completed transaction. This computer

facility 80 is programmed suitably to erase from its temporary

storage all data relating to all transactions for which

"completed transaction" data signals are monitored and wherein a

code signal corresponding to a MATCH Code is not monitored as

occurring during each such completed transaction.

The computer facility 80 also is programmed to identify

and to transfer from temporary storage to its internal

selectively accessible data storage each group of data including

all data relating to each completed transaction involving a

MATCH Code. All such data relating to each completed

transaction involving a MATCH Code incudes all data occurring

and/or developed during a completed transaction during which is

monitored a code signal corresponding to a MATCH Code.

The computer facility 80 as shown has suitable selectively accessible data storage capacity for accessibly storing all such groups of data occurring within a predetermined convenient time period, such convenient time period being determined by management of the retail establishment 12, or being determined by corporate headquarters management of a chain, if the retail establishment 12 is included in a chain.

Accessible from a port 100 of the computer facility 80 is each group of data relating to all data relating to, i.e., occurring and/or developed during, each completed transaction during which is monitored a code signal corresponding to a MATCH" Code. Said groups of data are available through port 100 for analysis as is shown by arrow 110 directed to a data analysis computer facility 120 for individually analyzing each group of data including all data relating to individual completed transactions during each of which a code signal corresponding to a MATCH Code had been monitored.

This analysis facility 120 is programmed as determined by management of the establishment 12 to carry out analysis of each individual group of data for a completed transaction each of which involves MATCH Code data. Various possible analytical procedures are described later which can be carried out advantageously for enhancing retail operations. The results of

such computer analysis are provided to management of the establishment 12 as is shown by an analysis output arrow 160. It is noted that this data analysis computer facility 120 may be incorporated within the computer facility 80, in which case the port 100 is a port within the computer facility 80.

Alternatively, the data analysis computer facility 120 may be located at a remote corporate chain headquarters, if the establishment 12 is part of a retail chain. In the event that the data analysis computer facility 120 is located at a remote corporate headquarters for a chain, then a data communication and interrogation pathway 130' shown by a dash and dot line extends through a data communication and interrogation pathway 130 (described later in greater detail) to a host computer at the remote corporate headquarters (not shown).

This data communication and interrogation pathway 130 extends outside of the establishment 12 through an outside region 14 to the centralized host computer facility (not shown). A double line 13 indicates the boundary of the establishment 12, with the region 14 being outside of this boundary.

If the retail establishment 12 is part of a chain, then this data communication and interrogation pathway 130 also is in

communication with a port 150 of the data storage computer facility 40 as is shown in FIG. 1.

In the event that the retail establishment 12 is part of a chain (and regardless of whether or not the data analysis computer facility 120 is included within the computer facility 80), this data analysis computer facility has a communication port 140 which is in communication through a data communication and interrogation pathway 130 with a centralized host computer facility (not shown) located at the remote corporate headquarters (not shown) or located at a dedicated site used by such headquarters.

Management of the chain may determine programming of the computer facility 120 regardless of whether this facility 120 is located nearby to the establishment 12 or is located at corporate headquarters or at a dedicated site for use by corporate headquarters. The output results 160 of such computer analysis are arranged to be provided to corporate management of the chain. These analytical out put results 160 may be provided so as to be communicated to and available from the host computer in any convenient form as determined by corporate management of the chain.

It is noted that each communication pathway 30, 90, 110, 130 and 130' will include suitable signal handling equipment as may be technologically available at a time when a method, system and apparatus 10 embodying the invention are put into operation in a retail establishment 12. Also, each computer facility 40, 80 and 120 will include suitable processing and data storage capability as may be technologically available at a time when a method, system and apparatus 10 embodying the invention are put into operation in a retail establishment 12.

In FIG. 2 is shown a method, systems and apparatus generally indicated at 10A, wherein a data storage computer facility 40A is programmed in accord with aspects of the present invention. This facility 40A is programmed to provide therein accessible data storage 82 for the groups of data signals transmitted thereto from a computer facility 80A.

This computer facility 80A is similar in some respects to the computer facility 80 in FIG. 1 in that this facility 80A monitors data signals 52 and 54 as is shown by arrows 52' and 54' for detecting each code signal corresponding to a MATCH Code and for identifying each group of data including all data relating to each completed transaction involving a MATCH Code.

Unlike the computer facility 80 in FIG. 1, this computer

facility 80A selectively feeds to the accessible storage 82

which has been programmed into the data storage computer

facility 80A in accordance with a method embodying the present

invention so that this data storage 82 is available in the

computer facility 40A.

Since the accessible storage 82 is programmed to be

within the retail establishment's data storage computer facility

80A, the data analysis computer facility 120 is in communication

with this accessible storage through a suitable communication

pathway 110. The data analysis computer facility 120 may be

located outside of the computer facility 80A or may be included

within this facility. It is programmed as determined by

management of the establishment 12 to carry out analysis of each

individual group of data for completed transactions each of

which involves MATCH Code data. Various possible analytical

procedures are described later which can be carried out

advantageously by computer analysis for enhancing retail

operations. The results of such computer analysis are provided

to management of the establishment 12 as is shown by an analysis

output arrow 160.

In the event that the establishment 12 is part of a

retail chain, then the data analysis computer facility 120 may

be located at corporate headquarters of the chain or at a
dedicated site used by management of the chain. This data
analysis computer facility is arranged to be programmed as
determined by management of the chain to carry out analysis of
each individual group of data for completed transactions each of
which involves MATCH Code data. Various possible analytical
procedures are described later which can be carried out
advantageously by computer analysis for enhancing retail
operations of the chain as a whole and for enhancing retail
operations of each retail establishment 12 in the chain.

As illustrated in FIG. 3, data signals 52' and 54'
being monitored are fed by communication pathway 90 into
temporary storage 91 which is provided by computer facility 80
in FIG. 1 and is provided at 82 in computer facility 40A in FIG.
2. As shown at 92 the computer facility 80 in FIG. 1 of 80A in
FIG. 2 determines: DOES STORED DATA FOR A COMPLETED TRANSACTION
INCLUDE DATA CORRESPONDING TO A MATCH CODE?

When this determination 92 is NO, then data which was
temporarily stored as shown at 91 is removed as is shown at 93.

When this determination 92 is YES, then as is shown at
94 an identification is made of each group of data including all
data relating to each completed transaction including data

corresponding to a MATCH Code. This identification is made by the computer facility 80 in FIG. 1 or 80A in FIG. 2.

Each such group of data is selectively accessibly stored as is shown at 95. This accessible storage is provided in computer facility 80 in FIG. 1 or in computer facility 40A in FIG. 2 as is shown at 82 in the computer facility 40A.

Each individual group of data is analyzed as shown at 96 in accord with analytical procedures determined by the management responsible for operations at the retail establishment 12. This analysis is carried bout by the computer facility 120 which may be a separate facility at the retail establishment 12 or which may be included in the computer facility 80 or 80A of which may be located at headquarters of a retail chain or located at a dedicated site convenient for management of a retail chain or which may be programmed into a host computer facility of the retail chain.

The analysis 96 provides an output of results of analysis as is shown at 97 which is provided as indicated by the output arrow 160 in FIG. 1 and in FIG. 2.

in the SUMMARY OF THE DISCLOSURE at (a), (b), (c), (d), (e) and (f). In addition this analysis may include one of more of the following steps:

(g)   determining whether and how often a specifically-identified customer patronizes more than one retail establishment 12 in the chain;

(h)   determining whether a specifically-identified customer has purchased a multi-year usage item, such as a refrigerator, stove, dishwasher, clothes washer, clothes dryer, lawn mower, and the like and the identity of such an item. If the specifically-identified customer has purchased such an item, then the analysis procedures may include determining an expected useful or utilitarian lifetime of such an item and may set up a program to send a suitable notice to the specifically-identified customer at a future date for advising this customer that such an item purchased at such store on such date has a useful or utilitarian lifetime which will expire in a time period of such months and informing this customer that certain improved models of that item are available and that a purchase price for each such improved model will be reduced by such percentage if this customer will prior to such a date place an order for such improved model and that an invoice for such purchase will not be sent to this customer until one month after the ordered improved model has been delivered directly to this customer, thereby

saving the customer's time, costs and effort in selecting and arranging for delivery of such improved model; and

(i) since the output of results of analysis 97 includes this vital information, namely: THIS SPECIFICALLY-IDENTIFIED CUSTOMER IS ONE OF OUR MOST PROFITABLE SHOPPERS, AND WE NOW KNOW THE LOCATION OF THIS SHOPPER AND THIS SHOPPER'S CUSTOMARY TYPES OF PURCHASES AND PURCHASING PATTERNS, therefore we will arrange our inventory of products so that this customer will not encounter an out-of-stock situation at this customer's usually-used store and we will arrange our promotions and sales in various ways as are most likely to encourage patronage and engender loyalty in this customer directed toward our stores.

Although specific presently preferred embodiments of the invention have been disclosed herein in detail, it is to be understood that these examples of the invention have been described for purposes of illustration. This disclosure is not intended to be construed as limiting the scope of the invention, since the described method, systems and apparatus may be changed in detail by those skilled in the field of retailing and mass marketing without departing from the scope of the following claims.